

AMENDMENTS TO THE CLAIMS:

1 1. (Currently amended) An asymmetrical digital subscriber line (ADSL) system for
2 transferring an analog audio signal of an analog communication equipment and high speed
3 digital data of a high speed digital data equipment provided on the side of a subscriber, from
4 and to a station, through one subscriber line, said system comprising:

5 an apparatus on the subscriber side in which an analog audio signal of the analog
6 communication equipment is converted into a digital audio signal, said subscriber side
7 apparatus comprising a line concentrator to concentrate the digital audio signal together with
8 the high-speed digital data by time division, and supplied to the subscriber line after being
9 modulated by a first ADSL modem, while after a signal received from the station through the
10 subscriber line is demodulated by the first ADSL modem, the digital audio signal is converted
11 into an analog audio signal and supplied to the analog communication equipment, and at the
12 same time high-speed digital data is supplied to the high-speed digital data equipment; ~~and~~

13 an apparatus on the station side in which a signal received from said apparatus on the
14 subscriber side through the subscriber line is demodulated by a second ADSL modem,
15 thereafter the digital audio signal is converted into an analog audio signal, which is supplied to
16 an analog telephone network, and at the same time high-speed digital data is supplied to a
17 high-speed digital data network, while an analog audio signal of the analog telephone network
18 is converted into a digital audio signal, said station side apparatus comprising a line
19 concentrator to concentrate the digital audio signal together with high-speed digital data of the
20 high-speed digital data network by time division, and supplied to the subscriber line after being

09/450,768
MA-385-US

21 modulated by the second ADSL ~~modem~~; modem; and
22 a subscriber line interconnected directly between said first ADSL modem in said
23 apparatus on the subscriber side and said second ADSL modem in said apparatus on the
24 station side, with no intervening equipment.
25 wherein said apparatus on the subscriber side and apparatus on the station side convert
26 each digital audio signal as well as each high-speed digital data into asynchronous transfer
27 mode (ATM) cells in each respective line concentrator and attach each destination address to
28 the ATM cells.

2. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog communication equipment into each digital audio signal and concentrates the digital audio signal together with the high-speed digital data by time division.

3. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side and said apparatus on the station side convert each digital audio signal as well as each high-speed digital data into ATM cells, attach each destination address to the ATM cells in the line concentrator, and concentrate the digital audio signal together with the high-speed digital data.

4. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog communication equipment into each digital audio signal and concentrates the digital audio signal together with

09/450,768
MA-385-US

high-speed digital data by time division, and

said apparatus on the subscriber side and apparatus on the station side convert each digital audio signal as well as each high-speed digital data into ATM cells, attach each destination address to the ATM cells in the line concentrator, and concentrate the digital audio signal together with the high-speed digital data.

5. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side and apparatus on the station side divide each digital audio signal as well as high-speed digital data into fixed time slots and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by the first ADSL modem.

6. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog communication equipment into each digital audio signal and concentrates the digital audio signal together with high-speed digital data by time division, and said apparatus on the subscriber side and apparatus on the station side divide each digital audio signal as well as high-speed digital data into fixed time slots and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by the ADSL modem.

1 7. (Currently amended) An asymmetrical digital subscriber line (ADSL) system for
2 transferring an analog audio signal of an analog communication equipment and high speed
3 digital data of a high speed digital data equipment provided in an apparatus on a subscriber

09/450,768
MA-385-US

side, from and to an apparatus on a station side, through one subscriber line, said system comprising:

said apparatus on the subscriber side ~~comprises~~ comprising:

an analog-to-digital/digital-to-analog (AD/DA) converter for converting an analog audio signal of the analog communication equipment into a digital audio signal or converting a digital audio signal into an analog audio signal, to supply the analog audio signal to the analog communication equipment, and supplying the high-speed digital data to the high-speed digital data equipment;

a line concentrator for concentrating the digital audio signal and the high-speed digital data by time division; and

a first ADSL modem for modulating the digital audio signal and the high-speed digital data and supplying the modulated signal to the subscriber line, and demodulating a modulated signal received from the station side through the subscriber line;

said apparatus on the station side ~~comprises~~ comprising:

a second ADSL modem for demodulating the modulated signal received from said apparatus on the subscriber side through the subscriber line and modulating a digital audio signal and high-speed digital data to be supplied to the subscriber line; and

a line concentrator for supplying the digital audio signal modulated by said second ADSL modem to an analog telephone network as well as supplying the high-speed digital data to the high-speed digital data network, and concentrating the digital audio signal from the analog telephone network and the high-speed digital data from the high-speed digital data network by time division, then to send the digital audio signal together with the high-speed digital data to said first ADSL ~~modem~~, modem, and

09/450,768
MA-385-US

27 said subscriber line interconnects directly said first ADSL modem and said second
28 ADSL modem, with no intervening equipment,

29 wherein said apparatus on the subscriber side and said apparatus on the station side
30 convert each digital audio signal and the high-speed digital data into asynchronous transfer
31 mode (ATM) cells in each respective line concentrator and attach a destination address to the
32 ATM cells.

8. (Previously presented) An ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converters corresponding to a plurality of analog communication equipment; and

 said line concentrator in said apparatus on the subscriber side concentrates each digital audio signal converted by the plurality of AD/DA converters, together with the high-speed digital data, by time division.

9. (Previously presented) An ADSL system as set forth in Claim 7, wherein said line concentrators in said apparatus on the subscriber side and in said apparatus on the station side convert digital audio signals and high-speed digital data into ATM cells in the line concentrators, attach each destination address to the ATM cells and concentrate the digital audio signal together with the high-speed digital data.

10. (Previously presented) An ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converter corresponding to a plurality of analog communication equipment, and said line concentrators in said apparatus

09/450,768
MA-385-US

on the subscriber side and in said apparatus on the station side convert digital audio signals and high-speed digital data into ATM cells, attach each destination address to the ATM cells in the line concentrator, and concentrate the digital audio signal together with the high-speed digital data.

11. (Previously presented) An ADSL system as set forth in Claim 7, wherein said line concentrators in said apparatus on the subscriber side and in said apparatus on the station side divide each digital audio signal and high-speed digital data into fixed time slots, and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by said ADSL modem.

12. (Previously presented) An ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converter corresponding to a plurality of analog communication equipment, and said line concentrators in said apparatus on the subscriber side and in said apparatus on the station side divide each digital audio signal and high-speed digital data into fixed time slots, the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by said ADSL modem.

13. (Previously presented) An ADSL system as set forth in Claim 1, wherein each said first and second line concentrator comprises an ATM cell convertor, and wherein individual destination addresses are attached to each ATM cell.

09/450,768
MA-385-US

14. (Previously presented) An ADSL system as set forth in Claim 7, wherein each said first and second line concentrator comprises an ATM cell convertor, and wherein individual destination addresses are attached to each ATM cell.

15. (Currently amended) A method of transferring an analog audio signal over an asymmetrical digital subscriber line (ADSL) containing high-speed digital data, said method comprising:

providing a subscriber service via an apparatus on a subscriber side of the network receiving as inputs an analog audio signal of an analog communication device and high-speed digital data of a high-speed digital data device, said providing subscriber service comprising:

converting the analog audio signal into a digital audio signal;

converting each digital audio signal and each high-speed data into asynchronous transfer mode (ATM) cells in a line concentrator;

attaching each destination address to each ATM cell;

concentrating said converted digital audio signals together with said converted high-speed digital data into an ATM cell string signal using time division;

modulating said ATM cell string with a first ADSL modem; and

transmitting said modulated ATM cell string signal to the subscriber line; and

receiving the ATM signal from said subscriber side into an apparatus on the station side, said receiving comprising:

demodulating said ATM signal with a second ADSL modem located in said apparatus on the station side;

converting said concentrated digital audio signal into an analog audio signal;

09/450,768
MA-385-US

transmitting said analog audio signal to an analog telephone network; and
transmitting said concentrated high-speed digital data to a high-speed digital network,

wherein said first ADSL modem is interconnected directly to said second ADSL modem via a subscriber line, with no intervening equipment.

16. (Previously presented) The method of claim 15, further comprising:

dividing each digital audio signal and each high-speed digital data into fixed time slots;
and

supplying said divided digital audio signals together with said high speed digital data to said subscriber line after modulation by said first ADSL modem.

17. (Previously presented) The method of claim 15, further comprising:

extracting a payload from said ATM cell string and converting said extracted digital audio signals into analog audio signals.

18. (Previously presented) The method of claim 15, wherein said concentrating said converted digital audio signals together with said converted high-speed digital data using time division comprises multiplexing said signals and said data in a multiplexer.

19. (Previously presented) The method of claim 15, wherein said concentrating said converted digital audio signals together with said converted high-speed digital data comprises modulating said ATM cells received from said line concentrator.

09/450,768
MA-385-US

20. (Previously presented) The method of claim 15, further comprising:

transmitting an ATM cell string having an address attached for the analog telephone network by said second line concentrator to said analog telephone network; and

transmitting an ATM cell string having an address attached for the high-speed digital network to a high speed digital telephone network.